Updated estimates of typhoid fever burden in sub-Saharan Africa

The Typhoid Fever Surveillance in Africa Program (TSAP), which was conducted over a 2-year period between 2010 and 2013, provided new incidence figures for typhoid fever in sub-Saharan Africa.[1] We used these novel data to update estimates of typhoid fever disease burden in Africa according to a model that was previously developed to estimate typhoid fever disease burden in low-income and middle-income countries.[2]

We performed probabilistic multivariate sensitivity analysis to evaluate the uncertainty associated with the updated estimates, with and without correction for water-related risk (table, appendix). These findings were then compared with results from previous studies.[2] Blood culture sensitivity was assumed to be 61·0% (95% CI 52·0–70·0) based on a systematic literature review.[3]

Of the 13 TSAP sentinel sites, incidence data were available from nine sites representing six countries: Burkina Faso (two sites), Guinea-Bissau, Ghana, Tanzania (two sites), Kenya, and Madagascar (two sites).[1] The updated mean annual typhoid fever incidence per 100 000 people decreased from 537 to 348 in east Africa and increased from 160 to 422 in west Africa following our analysis (data not shown). These figures correspond to an average annual incidence of 318 per 100 000 people in Africa, which is an increase of 18 per 100 000 from the previous estimates.[2] Compared with these previously published figures,[2] the resulting overall burden increased by 6·1% in Africa and 1·6% among all low-income and middle-income countries; however, these differences remain within the 95% CI of the previous estimates.[2] These changes can be mostly attributed to the increased incidence in Ghana and Burkina Faso, and decreased incidence in Kenya and Madagascar observed through TSAP compared with previous projections.

Updated data on the burden of typhoid fever are subject to the same limitations as previous studies.[2,4,5] Nevertheless, these estimates show that the burden of typhoid fever in Africa continues to be high, and highlight the need for control measures, including typhoid vaccination for high-risk populations and areas, and improvements in water, sanitation, and hygiene.

	Published disease burden[2]	Updated disease burden	
	Adjusted*	Adjusted*	Unadjusted
North Africa	33 807 (25 809–44 185)	33 807 (26 213–44 165)	61 971 (50 089–75 713)
East Africa	1 749 861 (1 386 537–2 203 996)	1 136 475 (923 293–1 408 893)	1 537 745 (1 260 751–1 859 727)
West Africa	489 669 (309 531–729 282)	1 290 109 (1 033 714–1 609 697)	1 720 936 (1 380 325–2 113 584)
Middle Africa	713 517 (568 060–887 805)	713 517 (569 039–889 638)	881 368 (704 662–1 091 018)
Southern Africa	103 542 (76 359–140 868)	103 542 (75 835–140 861)	188 529 (143 043–244 423)
Total for Africa	3 090 396 (2 504 427–3 829 277)	3 277 450 (2 763 807–3 922 186)	4 390 549 (3 741 502–5 141 476)
Total for LMICs	11 883 047 (9 925 551–14 751 214)	12 070 102 (10 013 525–14 827 728)	20 811 469 (17 762 215–24 270 115)

Data are mean cases (95% CI). *Adjusted for water-related risk. LMICs=low-income and middle-income countries.

Table: **Typhoid fever burden in Africa estimated from 2010 population data[2]**

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*Jong-Hoon Kim, *Vittal Mogasale, Justin Im, Enusa Ramani, Florian Marks*

vmogasale@ivi.int

Epidemiology Unit (J-HK, JI, FM) and Development and Delivery Unit, Policy and Economic Research Department (VM, ER), International Vaccine Institute, SNU Research Park, 1 Gwanak-ro, Seoul 08826, South Korea

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